REMARKS

Applicants request reconsideration of the subject application based on the following remarks. Claims 1-7 are currently pending in the application. Claims 1, 3 and 6 have been amended and claims 5 and 7 have been canceled. No new matter is introduced by these amendments. Support for the amendments may be found throughout the specification and claims. Applicants make such amendments without prejudice to pursuing the originally presented or canceled subject matter in a later application claiming benefit of this application, and particularly without prejudice to determination of equivalents of the subject matter of this application or any later application claiming benefit of this application.

Objections

Claims 3, 5 and 7 are objected to as reciting non-elected subject matter; more specifically, SEQ ID NOs: 3, 5, 7, 9, 11, 13, 15, 17 and 21. Applicants have amended claim 3 such that it no longer recites those sequences. The cancellation of claims 5 and 7 render the objection moot as to those claims. Applicants request withdrawal of this objection.

Rejection Under 35 U.S.C. § 112, first paragraph

Claims 1, 2, 4 and 6 are rejected as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention; and further, allegedly lacking enablement for any embodiment other than an isolated nicotianamine synthase comprising SEQ ID NO: 1. Applicants traverse; however, in order to expedite prosecution of the application, Applicants have amended claim 1 (and claims 2, 4 and 6 thereby as they depend from claim 1) to recite SEQ ID NO: 1 and polypeptides having more than 50% identity with SEQ ID NO: 1 and comprising at least one of six listed consensus sequences that are conserved among various nicotianamine synthases delineated in FIG. 7 of the application as filed. Support for this

amendment appears throughout the specification as filed, including at page 18, first paragraph, and at FIG. 7.

Applicants have amended claim 1 to recite the following consensus sequences: $_{25}$LPXLSPSPXVDRLFTXLVXACVPXSPVDVTKL$_{56}$, $_{67}$LIRLCSXAEGXLEAHY$_{82}$, $_{92}$PLDHLGXFPY$_{101}$, $_{128}$VAFXGSGPLPFSS$_{140}$, $_{199}$DVVFLAALVGM$_{209}$ and $_{253}$RGGFXVLAVXHP$_{264}$. These consensus sequences are conserved in the seven nicotianamine synthases delineated in FIG. 7, wherein asterisks indicate corresponding positions with identical amino acids throughout all seven sequences. Thus, one of ordinary skill would appreciate the relevance of these structural motifs and appreciate that positions outside a particular consensus sequence are amenable to manipulation. This teaching of the sequence areas that are conserved for functional activity combined with the knowledge of one of ordinary skill in the art pertaining to methods of making recombinant DNA and producing recombinant protein provides guidance as to Applicants' claimed subject matter; polypeptides of SEQ ID NO: 1 and polypeptides having more than 50% identity with SEQ ID NO: 1 and comprising at least one of the six listed conserved consensus sequences. Moreover, based on the knowledge of one of ordinary skill regarding the practice of recombinant DNA technology and protein production, the examples at pages 19-27 of Applicants' specification, and Figures 1 to 18 of the Specification (particularly the sequences of FIG. 7), one of ordinary skill could make and use the delineated nicotianamine synthase polypeptides (i.e., those of SEQ ID NO: 1 or having greater than 50% identity with SEQ ID NO: 1 and at least one delineated conserved consensus sequence) without undue experimentation. Applicants submit that one of ordinary skill, in light of the teaching of Applicants' specification regarding the amino acid residues that are conserved in sequences having nicotianamine synthase activity, would understand and appreciate how to make and how to use the claimed subject matter. Applicants therefore respectfully request withdrawal of the rejection.

Rejection Under 35 U.S.C. 102(b)

Claims 1 and 2 are rejected as anticipated by Higuchi et al. (Plant Physiol. 1999 Feb. 119(2):471-480). It is alleged in the Action that Higuchi teaches a nicotianamine synthase protein which has at least one amino acid that has been replaced, deleted or inserted into the sequence of SEQ ID NO: 1, thus anticipating the claimed invention. Applicants traverse.

Applicants note that this application is a U.S. national phase application of international application PCT/JP99/02305, filed April 30, 1999, which claims priority benefit of **JP10-137685/1998, filed April 30, 1998** (English translation enclosed). As such, the claimed subject matter is entitled to the priority benefit of JP10-137685/1998 and its filing date of April 30, 1998. With a publication date of February 1999, Higuchi is not properly citable as prior art. Applicants therefore respectfully request withdrawal of this rejection.

Applicants respectfully submit that the application is in condition for allowance, which is earnestly solicited. Should the application not be found to be in such condition, Applicants request that the Examiner telephone Applicants' undersigned representative to discuss any unresolved matters. Applicants thank the Examiner in advance for this courtesy.

Applicants believe that additional fees are not required for consideration of this Amendment. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,

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